

PowerLogic™ Power Meter PM5350

Installation Guide

63230-401-202 A10

English

12/2019



Schneider
Electric

To install a PM5350 meter into a multi-circuit application, refer to the PM5350 Series Multi-Circuit Installation Guide, part number EAV25860.

For California residents only

- WARNING:** Cancer and Reproductive Harm
www.P65Warnings.ca.gov
- ADVERTENCIA:** Cáncer y Daño Reproductivo
www.P65Warnings.ca.gov
- AVERTISSEMENT:** Cancer et Troubles de l'appareil reproducteur - www.P65Warnings.ca.gov

ADDITIONAL RESOURCES

For information on basic meter setup, refer to the PM5350 User Guide. You can download the user guides and other documentation from our website at www.schneider-electric.com. Type PM5350 in the search field.

SAFETY PRECAUTIONS

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E in the USA or applicable local standards.
- Only qualified electrical workers should install this equipment. Such work should be performed only after reading this entire set of instructions.
- NEVER work alone.
- Do not exceed the device's ratings for maximum limits.
- Do not use this device for critical control or protection applications where human or equipment safety relies on the operation of the control circuit.
- Before performing visual inspections, tests, or maintenance on this equipment, disconnect all sources of electric power. Assume that all circuits are live until they have been completely de-energized, tested, and tagged. Pay particular attention to the design of the power system. Consider all sources of power, including the possibility of backfeeding.
- Turn off all power supplying this device before working on it.
- Always use a properly rated voltage sensing device to confirm that all power is off.
- Before closing all covers and doors, carefully inspect the work area for tools and objects that may have been left inside the equipment.
- Use caution while removing or installing panels so that they do not extend into the energized bus; avoid handling the panels, which could cause personal injury.
- The successful operation of this equipment depends upon proper handling, installation, and operation. Neglecting fundamental installation requirements may lead to personal injury as well as damage to electrical equipment or other property.
- NEVER bypass external fusing.
- NEVER short the secondary of a PT or VT.
- NEVER open circuit a CT; use the shorting block to short circuit the leads of the CT before removing the connection from the power meter.
- Before performing Dielectric (Hi-Pot) or Megger testing on any equipment in which the power meter is installed, disconnect all input and output wires to the power meter. High voltage testing may damage electronic components contained in the power meter.
- The power meter should be installed in a suitable electrical enclosure.
- Always use grounded external CTs for current inputs.
- All external CT's and PT's should have reinforced insulation.

Failure to follow these instructions will result in death or serious injury.

1. Turn off all power supplying this device before working on it.
2. Always use a properly rated voltage sensing device to confirm that all power is off.

INSTALLATION

Box Contents

- One (1) power meter with retainer clips attached
- One (1) set of installation guides
- One (1) RS-485 terminator (MCT2W)
- One (1) panel gasket
- One (1) certificate of calibration
- Two (2) screws (spare screws for CTs)

Figure 1: Parts of the PM5350 (rear panel door removed)

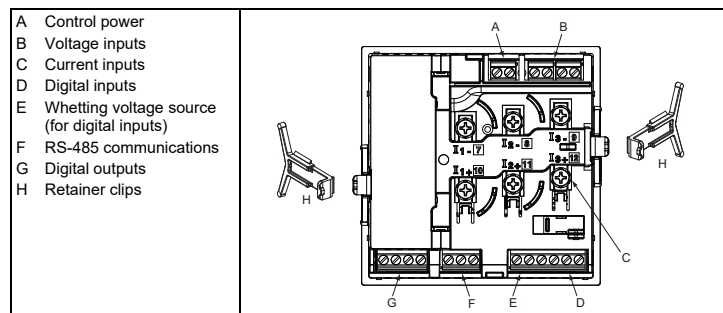
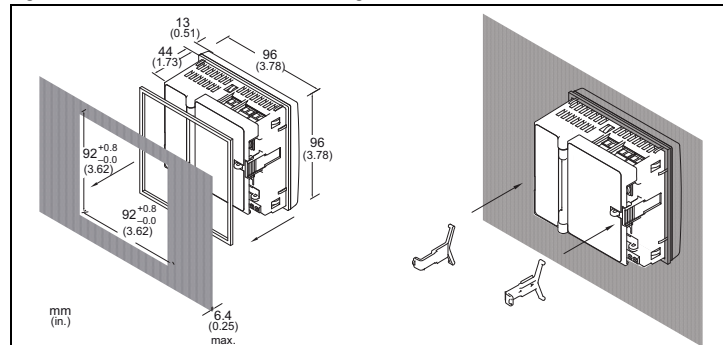


Figure 2: PM5350 Dimensions and Mounting



Mounting

1. Remove retainer clips from the power meter and set aside.
2. Insert the power meter through the panel cut-out (Figure 2).
NOTE: Remove adhesive backing from the panel gasket before inserting the power meter.
3. Attach the retainer clips to the power meter (Figure 2).

Installation Considerations

When choosing a mounting location, consider the following points:

- Allow for easy access to all parts of the power meter. Allow extra space for wiring, fuse disconnects, shorting blocks, accessories, or other components. Route the wires so that they do not cover the back of the unit or cooling vents on the power meter.
- Install the power meter on a flat surface of a protective enclosure (for example, in USA, use a Type 1 rated enclosure or better).

WIRING

See the label inside the rear panel door for wiring connections. Terminal wiring should have a minimum temperature rating of 80 °C (176 °F).

Table 1: Wiring Specifications

Connector	Wire Size	Wire Strip Length	Torque
Control Power ¹ and Voltage Inputs ¹	14 AWG	1.91 mm ² 0.28 in. 7 mm	4.4 - 5.3 in-lbf 0.5 - 0.6 N·m
Current Inputs ²	14 AWG	1.91 mm ² — —	4.4 - 5.3 in-lbf 0.5 - 0.6 N·m
RS-485 Communications, Digital Outputs ¹ , and Digital Inputs	16 AWG	1.34 mm ² 0.24 in. 6 mm	4.4 - 5.3 in-lbf 0.5 - 0.6 N·m
Measurement Category			
Voltage Inputs	UL: 20 to 300 Vac L-L, CAT III IEC: 20 to 480 Vac L-L; 20 to 277 Vac L-N, CAT III 20 to 690 Vac L-L; 20 to 400 Vac L-N, CAT II		
Control Power	CAT III, up to 265 Vac or 300 Vdc		

¹Wire ferrules recommended. Wire ferrule determines stripping length.
²Current inputs (CTs) must have spade or ring terminal connections.

Supported System Types

Figure 3: Single-Phase Power System Configurations

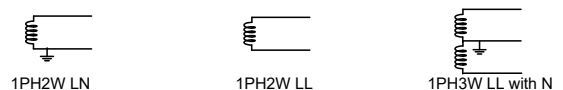


Table 2: Single-Phase

Power System Configuration	Number of Wires	CTs		Voltage Connections		See Figure
		Qty.	Meter Terminal	Qty.	Meter Terminal	
Single-Phase Wiring						
1PH2W LN	2	1 ¹	I1	2	V1, Vn	5
1PH2W LL	2	1 ¹	I1	2	V1, V2	6
1PH3W LL with N	3	2	I1, I2	3	V1, V2, Vn	7

¹For 1 and 2 CT systems, you must configure the meter for the phases on which the CT is installed. Please see the Power Meter PM5350 User Guide for more information.

Figure 4: Three-Phase Power System Configurations

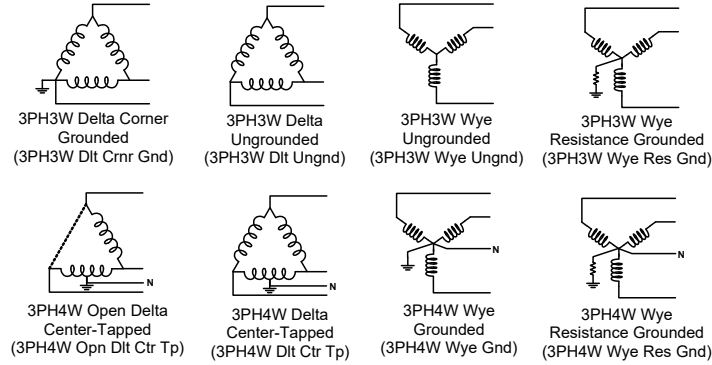


Table 3: Three-Phase (Direct Connect)

Power System Configuration	Number of Wires	CTs		Voltage Connections		See Figure
		Qty.	Meter Terminal	Qty.	Meter Terminal	
Three-Phase Wiring						
3PH3W Dlt Cmr Gnd 3PH3WDlt Ungnd 3PH3W Wye Ungnd 3PH3W Wye Res Gnd	3	2	I1, I3	3	V1, V2, V3	8
		3	I1, I2, I3	3	V1, V2, V3	9
3PH3W Dlt Cmr Gnd 3PH3WDlt Ungnd 3PH3W Wye Ungnd 3PH3W Wye Res Gnd	3	1 ¹	I1	3	V1, V2, V3	18
3PH4W Opn Dlt Ctr Tp 3PH4W Dlt Ctr Tp 3PH4W Wye Gnd 3PH4W Wye Res Gnd	4	3	I1, I2, I3	4	V1, V2, V3, Vn	10
3PH4W Opn Dlt Ctr Tp 3PH4W Dlt Ctr Tp 3PH4W Wye Gnd 3PH4W Wye Res Gnd	4	3	I1, I2, I3	4	V1, V2, V3, Vn	10
3PH4W Opn Dlt Ctr Tp 3PH4W Dlt Ctr Tp 3PH4W Wye Gnd 3PH4W Wye Res Gnd	4	1 ¹	I1	4	V1, V2, V3, Vn	19

¹For 1 and 2 CT systems, you must configure the meter for the phases on which the CT is installed. Please see the Power Meter PM5350 User Guide for more information.

Table 4: Three-Phase (with VTs)

Power System Configuration	Number of Wires	CTs		Voltage Connections		See Figure
		Qty.	Meter Terminal	Qty.	Meter Terminal	
Three-Phase Wiring						
3PH3W Dlt Cmr Gnd 3PH3WDlt Ungnd 3PH3W Wye Ungnd 3PH3W Wye Res Gnd	3	2	I1, I3	2	V1, V3 (V2 to Ground)	11
		3	I1, I2, I3	2	V1, V3 (V2 to Ground)	12
3PH3W Dlt Cmr Gnd 3PH3WDlt Ungnd 3PH3W Wye Ungnd 3PH3W Wye Res Gnd	3	1 ¹	I1	2	V1, V3 (V2 to Ground)	17
3PH4W Opn Dlt Ctr Tp 3PH4W Dlt Ctr Tp 3PH4W Wye Gnd 3PH4W Wye Res Gnd	4	3	I1, I2, I3	3	V1, V2, V3 (Vn to Ground)	13
		3	I1, I2, I3	2	V1, V3 (Vn to Ground)	14
		2	I1, I2, I3	3	V1, V2, V3 (Vn to Ground)	15
3PH4W Opn Dlt Ctr Tp 3PH4W Dlt Ctr Tp 3PH4W Wye Gnd 3PH4W Wye Res Gnd	4	1 ¹	I1	3	V1, V2, V3 (Vn to Ground)	16

¹For 1 and 2 CT systems, you must configure the meter for the phases on which the CT is installed. Please see the Power Meter PM5350 User Guide for more information.

Overcurrent Protection

Clearly label the device's disconnect circuit mechanism and install it within easy reach of the operator.

NOTE: The disconnect circuit breaker or fusing must be rated for the available short circuit current at the connection points.

Table 5: Fuse Recommendation


Control Power Source	Source Voltage (V _s)	Fuse	Fuse Amperage
CPT	V _s ≤ 125 Vac	FNM or MDL	250 mA
CPT	125 < V _s ≤ 240 Vac	FNQ or FNQ-R	250 mA
CPT	240 < V _s ≤ 265 Vac	FNQ or FNQ-R	250 mA
Line Voltage	V _s ≤ 240 Vac	FNQ-R	250 mA
Line Voltage	V _s > 240 Vac	FNQ-R	250 mA
DC	V _s ≤ 300 Vdc	LP-CC	500 mA

- For selecting fuses and circuit breakers other than those listed above, use the following criteria:
 - Select overcurrent protection rated as listed above.
 - Select current interrupt capacity based on the installation category and fault current capability.
 - Select overcurrent protection with a time delay.
 - The voltage rating should be based on the input voltage applied.
 - If a 250 mA fuse is not available with the required fault current capability, use a fuse rated at a maximum of 500 mA.
 - Fuse protection can be substituted with molded-case circuit breaker 0.5A/4P.

Table 6: Technical Specification

Electrical Characteristics		
AC Control Power	Operating Range	85 to 265 Vac
	Burden	4.1 VA / 1.5 W typical, 6.7 VA / 2.7 W maximum at 120 Vac 6.3 VA / 2.0 W typical, 8.6 VA / 2.9 W maximum at 230 Vac 11.9 VA / 3.5 W maximum at 265 Vac
	Frequency	45 to 65 Hz
	Ride-Through Time	100 mS typical at 120 Vac and maximum burden 400 mS typical at 230 Vac and maximum burden
DC Control Power	Operating Range	100 to 300 Vdc
	Burden	1.4 W typical, 2.6 W maximum at 125 Vdc 1.8 W typical, 2.7 W maximum at 250 Vdc 3.8 W maximum at 300 Vdc
	Ride-Through Time	50 mS typical at 125 Vdc and maximum burden
Input-Voltage	U _{nom}	277 V L-N
	UL:	20 to 300 Vac L-L, CAT III
	Measured Voltage with overrange and Crest Factor	IEC: 20 to 480 Vac L-L; 20 to 277 Vac L-N, CAT III 20 to 690 Vac L-L; 20 to 400 Vac L-N, CAT II
	Permanent Overload	700 Vac L-L 404 Vac L-N
	Impedance	10 MΩ
	Frequency Range	45 to 70 Hz
Input-Current	CT Ratings	Secondary 1A, 5A Nominal
	Measured Current with overrange and Crest Factor	5 mA to 9 A
	Withstand	Continuous 20 A 10 sec/hr 50 A 1 sec/hr 500 A
	Impedance	< 0.3 mΩ
	Frequency Range	45 to 70 Hz
	Burden	< 0.024 VA at 9 A
Rated Impulse Voltage		2.5 KV
Mechanical Characteristics		
IP Degree of Protection (IEC 60529)		Designed to IP51 front display, IP30 meter body (excluding connectors)
Environmental Characteristics		
Operating Temperature	Meter	-25 to +70 °C (-13 to +158 °F)
	Display	-20 to +70 °C (-4 to +158 °F) (Display functions to -25 °C (-13 °F) with reduced performance)

Table 6: Technical Specification

Storage Temperature	Meter + Display	-40 to +85 °C (-40 to +185 °F)
Humidity Rating	5 to 95% RH at 50 °C (122 °F) (non-condensing)	
Pollution Degree	2	
Altitude	≤ 3000 m	
Not suitable for wet locations		
Indoor use only		
Compliance		
Protective Class	Class II	
<div> Double insulation at user-accessible area</div>		

SAFETY INSTRUCTIONS

Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service or maintain it. The following special messages may appear throughout this bulletin or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of either symbol to a "Danger" or "Warning" safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.





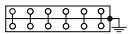
⚠ DANGER

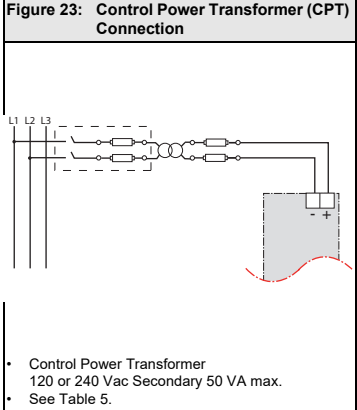
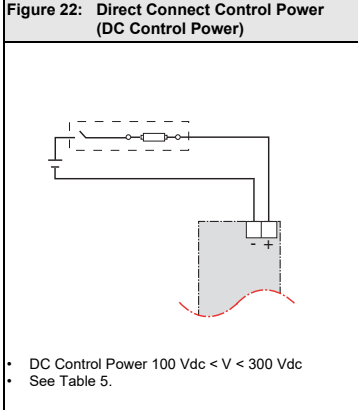
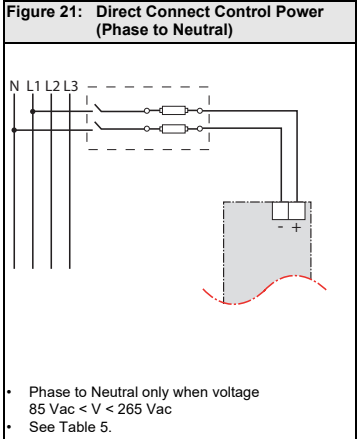
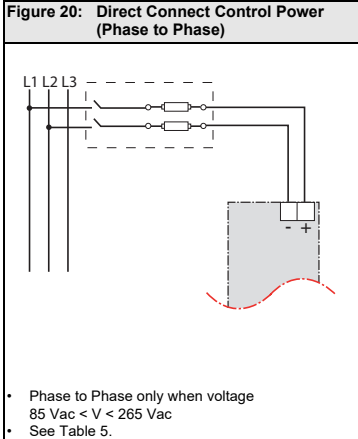
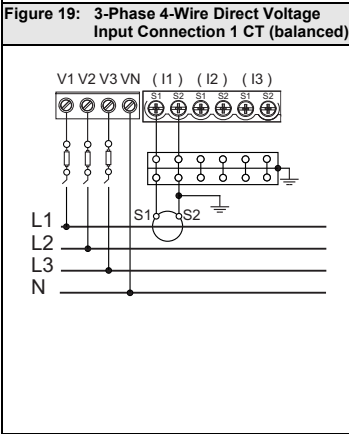
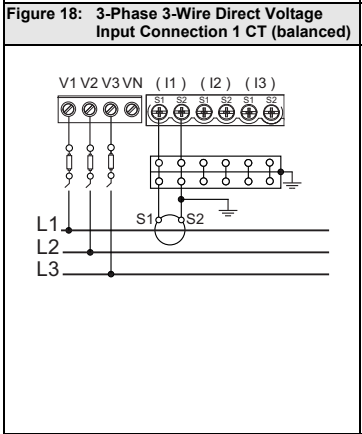
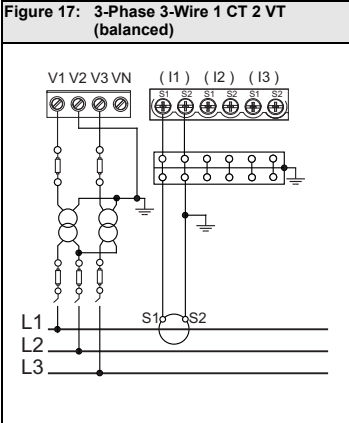
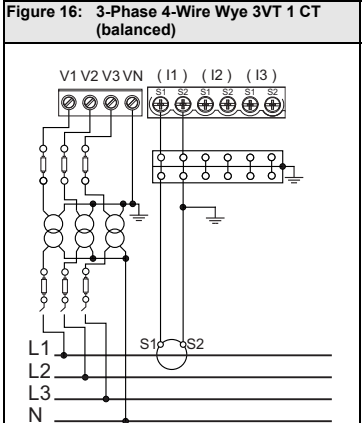
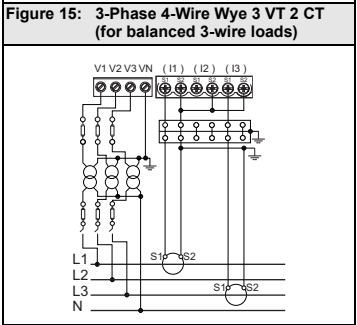
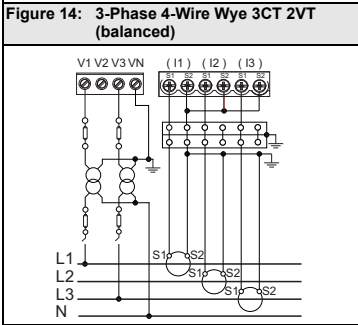
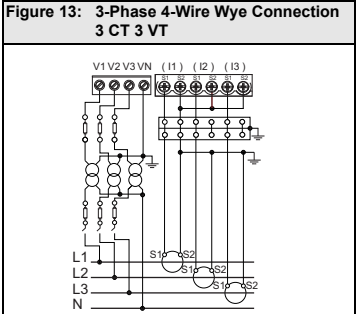
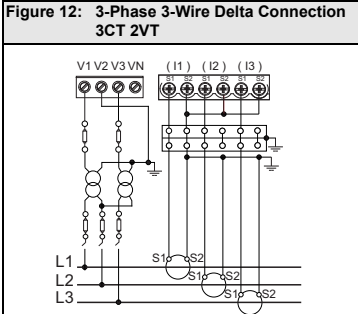
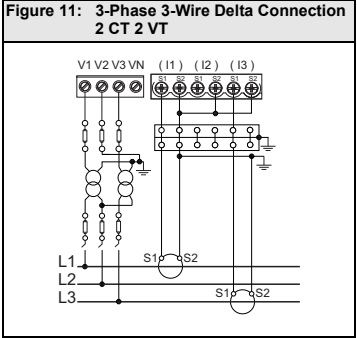
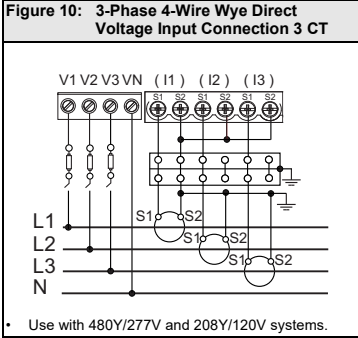
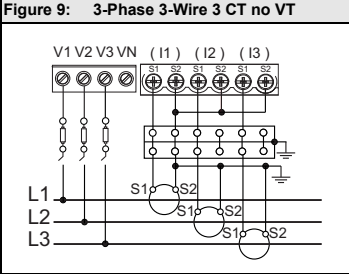
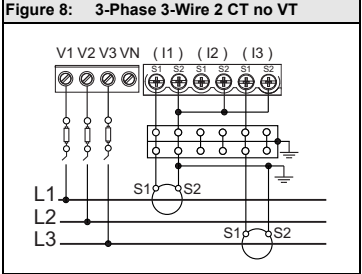
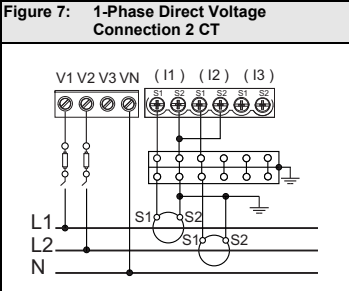
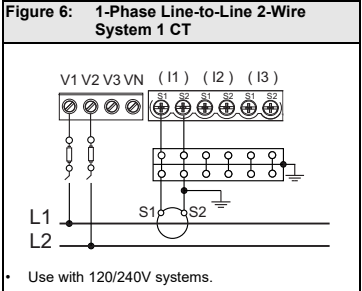
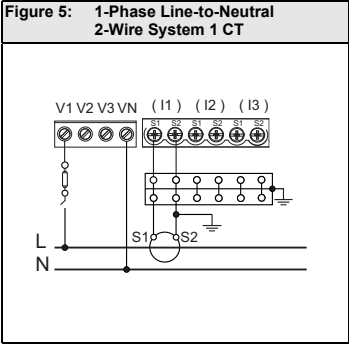
DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

Electrical equipment should be installed, operated, serviced and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material. A qualified person is one who has skills and knowledge related to the construction, installation, and operation of electrical equipment and has received safety training to recognize and avoid the hazards involved.

Wiring Diagrams

Table 7: Wiring Diagram Symbols

Symbol	Description
	Potential or voltage transformer
	Current Transformer
	Fuse
	Voltage disconnect switch
	Shorting block



INPUT/OUTPUT

⚠

WARNING

UNINTENDED EQUIPMENT OPERATION

- Do not use this device for critical control or protection applications where human or equipment safety relies on the control operation of the control action.
- Do not rely solely on device data to determine if your power system is functioning correctly or meeting all applicable standards and compliances.
- Do not use device control for time-critical functions because delays can occur between the time control action is initiated and when the action is applied.
- Do not use digital inputs for voltage sensing applications over 36 Vdc.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

The PM5350 has four (4) digital inputs and two (2) digital mechanical relay outputs. The digital inputs have two (2) control modes: Normal and Demand sync.

The digital outputs have three (3) control modes: External Control (default), Demand sync and Alarm mode. When configured in Alarm mode, the digital output can be controlled by the meter in response to an alarm condition.

Figure 24: I/O Connections

¹The overcurrent protective device must be rated for the short-circuit current at the connection point.

NOTE: Do not use the whetting voltage power supply as a power source for other devices.

- The terminal's voltage and current ratings are compliant with the requirements of the EIA RS-485 communications standard.

OPERATING THE DISPLAY

The power meter is equipped with a large, back-lit LCD display. It will display up to six lines of information plus a seventh row of menu options. Figure 26 shows the parts of the power meter display.

Figure 26: Parts of PM5350 Display

- A Icon 1-Wrench Icon (Maintenance) or Heartbeat Icon
- B Screen Title
- C Icon 2-Alarm Icon
- D Menu Area
- E Energy/Alarm LED (orange)
- F Heartbeat/Communication LED (green)
- G Button 4
- H Button 3
- I Button 2
- J Button 1
- K Data Area
- L Cursor

How the Buttons Work

Table 9: Button Symbols

Navigation	
	Return to the previous screen. For setup screens: <ul style="list-style-type: none">If setup changes are made, a confirmation screen is displayed.If editing a value, exits edit mode and restores previous value.
	Move cursor down.
	Move cursor up.
	Move the cursor one character to the left.
	Move cursor one character to the right.
	Increment active character; toggle list selection On.
	Decrement active character; toggle list selection Off.
	Select parameter or item to edit.
	Select/deselect item for association.
	Enter change to a parameter.
	Accept.
	Reject.
	Acknowledge alarms.
	Reset selected item.

COMMUNICATIONS CAPABILITIES

⚠

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Do not attempt to service the power meter. CT and PT or VT inputs may contain hazardous currents and voltages.
- Only authorized service personnel from the manufacturer should service the power meter.
- Shield conductors may be energized if not properly connected.
- Shield wire should be installed per the device's installation instructions and grounded at one end only.

Failure to follow these instructions will result in death or serious injury.

Table 8: RS-485 Communications Distances

Baud Rate	Maximum Communication Distances 1 to 32 Devices	
	Feet	Meters
9600	8,000	2,438
19200	6,000	1,829
38400	2,500	762

NOTE: Distances listed should be used as a guide only and cannot be guaranteed for non-PowerLogic devices. Refer to the master device's documentation for any additional distance limitations.

Daisy-chaining Devices to the Power Meter

The RS-485 slave port allows the power meter to be connected in a daisy chain with up to 31, 2-wire devices. In this document, communications link refers to a chain of devices that are connected by a communications cable.

Figure 25: Daisy-chaining 2-wire Devices

- If the power meter is the last device on the daisy chain, terminate it with the terminator provided.
- See Table 8 for the maximum daisy-chain communications distances for 2-wire devices.

China ROHS Certificate

The "Administrative Measures for the Restriction of Hazardous Substances in Electric Appliance and Electronic Products" requires this document to be shipped with all PM5350 products to the People's Republic of China. Purchasers in other countries may disregard.

Les "Administrative Measures for the Restriction of Hazardous Substances in Electric Appliances and Electronic Products" exige que ce document soit transporté avec tous les produits de PM5350 en République Populaire de Chine. Les acheteurs des autres pays peuvent le négliger.

Las "Administrative Measures for the Restriction of Hazardous Substances in Electric Appliances and Electronic Products" requiere que este documento sea enviado con todos los productos PM5350 a la República Popular de China. Los usuarios en otros países pueden ignorar este documento.

Product/ Produit/ Producto: PowerLogic™ PM5350 (METSEPM5350)

产品系列: 电力量度器仪及配件

部件名称 / Part Name	产品中有毒有害物质或元素的名称及含量 / Hazardous Substances					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
金属部件 / Metal parts	O	O	O	O	O	O
塑料部件 / Plastic parts	O	O	O	O	O	O
电子线路板 / PCBA	O	O	O	O	O	O

本表格依据SJ/T11364的规定编制。

O = 表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T11363-2006 标准规定的限量要求以下。

X = 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T11363-2006标准规定的限量要求。

This table is made according to SJ/T 11364.

O: indicates that the concentration of hazardous substance in all of the homogeneous materials for this part is below the limit as stipulated in GB/T 26572.

X: indicates that concentration of hazardous substance in at least one of the homogeneous materials used for this part is above the limit as stipulated in GB/T 26572.

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- This product must be installed, connected and used in compliance with prevailing standards and/or installation regulations.
- If this product is used in a manner not specified by the manufacturer, the protection provided by the product may be impaired.
- The safety of any system incorporating this product is the responsibility of the assembler/installer of the system.

As standards, specifications and designs change from time to time, always ask for confirmation of the information given in this publication.

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